UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/449,085	11/24/1999	KARTHIKEYAN (NMI) RAMASAMY	8343	5848

26890 7590 06/03/2003

JAMES M. STOVER
NCR CORPORATION
1700 SOUTH PATTERSON BLVD, WHQ4
DAYTON, OH 45479

EXAMINER	
DODDS, HAROLD E	
ART UNIT	PAPER NUMBER
2177	16

DATE MAILED: 06/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/449,085	RAMASAMY ET AL.	
	Examiner	Art Unit	
	Harold E. Dodds, Jr.	2177	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 April 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *36-74* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *36-74* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☒ Interview Summary (PTO-413) Paper No(s). *16* .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 38, 40, 51, 53, 64, and 66 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "operator" may designate a person or an abstract operator. The language in these claims should be modified to distinguish between these two possible meanings of the word "operator".

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 36, 43, 45, 49, 56, 58, 62, 69, and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callahan, II et al. (U.S. Patent No. 6,230,312), Epperson et al. (U.S. patent No. 5,754,771), Posse (U.S. Patent No. 5,544,175), and Bhargava et al. (U.S. Patent No. 5,680,603).

5. Callahan rendered obvious independent claims 36, 49, and 62 by the following:

"...for each thread, generating first execution trace information..." at col. 10, lines 12-17 and col. 8, lines 19-23.

"...for each thread, generating second execution trace information..." at col. 10, lines 12-17 and col. 8, lines 19-23.

"...first execution trace information...," at col. 8, lines 19-23.

"...and writing the first execution trace information and the second execution trace information..." at col. 10, lines 26-50 and col. 8, lines 19-23.

Callahan does not teach the use of query coordinators, the use of data servers, the use of log files, the use of execution plans, and the use of operator trees.

6. However, Epperson teaches the use of query coordinators and the use of data servers as follows:

"...in the query coordinator..." at col. 8, lines 43-46.

"...in the data server..." at col. 5, lines 51-57.

It would have been obvious to one of ordinary skill at the time of the invention to combine Epperson with Callahan since both Callahan and Epperson use the execution of tasks, the use of trace information, the use of threads, and perform testing.

Epperson does not teach the use of log files, the use of execution plans, and the use of operator trees.

7. However, Posse teaches the use of log files as follows:

"...to at least one execution log file..." at col. 9, lines 25-29 and col. 10, lines 54-57.

It would have been obvious to one of ordinary skill at the time of the invention to combine Posse with Callahan and Epperson since Callahan, Epperson, and Posse use the execution of tasks, the use of trace information, and perform testing and Epperson and Posse use sampling and performance analysis.

Posse does not teach the use of execution plans and the use of operator trees.

8. However, Bhargava teaches use of execution plans and the use of operator trees as follows:

"...comprises an execution plan..." at col. 3, lines 23-25.

"...in terms of one or more operator trees..." at col. 14, lines 53-56.

It would have been obvious to one of ordinary skill at the time of the invention to combine Bhargava with Callahan, Epperson, and Posse since Callahan, Epperson, Posse, and Bhargava teach the execution of tasks and perform testing, Epperson, Posse, and Bhargava use performance analysis, Epperson and Bhargava perform queries and use databases, and Posse and Bhargava use nodes.

9. As per claims 43, 56, and 69, the "...first execution trace information and the second execution trace information are written to a single file...," is taught by Callahan at col. 10, lines 46-50.

10. As per claims 45, 58, and 71, the "...reconstructing the execution trace information from the log file..." is taught by Posse at col. 8, lines 28-33, col. 9, lines 27-29, col. 10, line 67, col. 11, lines 1-3, and col. 10, lines 54-57.

11. Claims 38, 51, and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callahan, Epperson, Posse, and Bhargava as applied to claims 37, 50, and 63 above respectively, and further in view of Kimmerly et al. (U.S. Patent No. 5,628,017) and Rhodes et al. (U.S. Patent No. 6,073,110).

As per claims 38, 51, and 64, the "...first execution trace information...," is taught by Epperson at col. 8, lines 19-23,

but the "...further comprises operator dispatch information..."

and the "...operator start times and operator stop times..." are not taught by either Callahan, Epperson, Posse, or Bhargava.

However, Kimmerly teaches the use of operator dispatch information as follows:

"...An event-response dispatcher is adapted to receive information identifying the event-response routine, save the execution state of the execution engine, cause the execution engine to execute the event-response routine, and restore the execution state of the execution engine that existed before the event-response routine was executed..." at col. 3, lines 9-16.

It would have been obvious to one of ordinary skill at the time of the invention to combine Kimmerly with Callahan, Epperson, Posse, and Bhargava since Callahan, Epperson, Posse, Bhargava, and Kimmerly teach the execution of tasks and Callahan, Epperson, and Kimmerly teach the use of routines and subroutines.

KImmerly does not teach the use of operator start times and operator stop times.

However, Rhodes teaches the use of operator start times and operator stop times as follows:

"...The scheduling is preferably accomplished by matching the activity name data to a graphical calendar schedule that references the activity data, and assigning attributes to the calendar schedule including time interval data, start time data, stop time data, number of days spanned data, frequency of occurrence data and duration range data..." at col.2, lines 6-11.

It would have been obvious to one of ordinary skill at the time of the invention to combine Rhodes with Callahan, Epperson, Posse, Bhargava, and Kimmerly since Callahan, Epperson, Posse, Bhargava, Kimmerly, and Rhodes teach the execution of tasks, Callahan, Epperson, Posse, and Rhodes teach the use of time as an element,

Epperson, Bhargava, and Rhodes teach the use of databases, Posse, Bhargava, and Rhodes teach the use of nodes, and Epperson and Rhodes teach the use of activities.

12. Claims 39, 52, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callahan, Epperson, Posse, and Bhargava as applied to claims 36, 49, and 62 above respectively, and further in view of Junkin (U.S. Patent No. 6,493,717) and Harel (U.S. Patent No. 5,873,081).

As per claims 39, 52, and 65, the "...second execution trace information...," is taught by Epperson at col. 8, lines 19-23,

but the "...includes a session identifier (ID) and a query ID...," is not taught by either Callahan, Epperson, Posse, or Bhargava.

However, Jurkin teaches the use of session identifiers as follows:

"...The "UserID" or "uid" parameter (passed as "u") is a unique Session identifier..." at col. 9, lines 66-67.

It would have been obvious to one of ordinary skill at the time of the invention to combine Jurkin with Callahan, Epperson, Posse, and Bhargava since Callahan, Epperson, Posse, Bhargava, and Jurkin teach the execution of tasks, Callahan, Epperson, Posse, and Jurkin teach the use of trace information, Callahan, Epperson, and Jurkin teach the use of networks and the use of routines and subroutines, Epperson, Bhargava, and Jurkin teach the performing of queries, the use databases, and Posse, Bhargava, and Jurkin teach the use of nodes.

Jurkin does not teach the use of query IDs.

However, Harel teaches the use of query IDs as follows:

"...At step 360, the query identifier from which the expression tree was derived, QueryID1, is added to a list of query identifiers maintained for each node..." at col. 6, lines 54-56.

It would have been obvious to one of ordinary skill at the time of the invention to combine Harel with Callahan, Epperson, Posse, Bhargava, and Jurkin since Callahan, Epperson, Posse, Bhargava, Jurkin, and Harel teach the execution of tasks, Callahan, Epperson, Posse, Bhargava, and Harel teach performing testing, Callahan, Epperson, Jurkin, and Harel teach the use of networks, Epperson, Bhargava, Jurkin, and Herel teach the performing of queries, Posse, Bhargava, Jurkin, and Harel teach the use of nodes, Epperson, Posse, and Harel teach the use of samples.

13. Claims 40, 53, and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callahan, Epperson, Posse, Bhargava, Junkin, and Harel as applied to claims 39, 52, and 65 above respectively, and further in view of Zhou et al. (U.S. Patent No. 5,995,511).

As per claims 40, 53, and 66, the "...second execution trace information...," is taught by Epperson at col. 8, lines 19-23,

the "...further includes, for each operator...," is taught by Harel at col. 2, lines 16-18,

the "...an identifier (ID) for the operator...," is taught by Harel at col. 2, lines 16-18 and col. 10, lines 30-33,

but the "...start time stamp..."

and the "...finish time stamp...," are not taught by either Callahan, Epperson, Posse, Bhargava, Junkin, or Harel.

However, Zhou teaches the use of start time stamps and finish time stamps as follows:

"...As noted above, if the time stamp 87 corresponds to the eligible start time, the scheduling unit 43 in step 175 will increment the time stamp 87 by the group's time interval to generate the finish time; on the other hand, if the time stamp 87 corresponds to the finish time, the scheduling unit 43 will merely use the time stamp as the finish time..." at col. 21, lines 33-38.

It would have been obvious to one of ordinary skill at the time of the invention to combine Zhou with Callahan, Epperson, Bhargava, Posse, Jurkin, and Harel since Callahan, Epperson, Jurkin, Harel, and Zhou teach the use of networks, Posse, Bhargava, Jurkin, Harel, and Zhou teach the use of nodes, and Callahan, Epperson, Posse, and Zhou teach the use of time as an element.

14. Claims 41, 42, 54, 55, 67, and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callahan, Epperson, Posse, Bhargava, Junkin, Harel, and Zhou as applied to claims 40, 53, and 66 above, and further in view of Bamford et al. (U.S. Patent No. 6,243,702).

As per claims 41, 54, and 67, the "...start time stamp and the finish time stamp...," is taught by Zhou at col. 21, lines 33-38,

but the "...reference a logical time...," is not taught by either Callahan, Epperson, Posse, Bhargava, Junkin, Harel, or Zhou.

However, Bamford teaches the use of logical time stamps as follows:

"...To provide transactions with database snapshots, a multi-version parallel database system typically stamps each version of data with a logical timestamp..." at col. 1, lines 31-33.

It would have been obvious to one of ordinary skill at the time of the invention to combine Bamford with Callahan, Epperson, Posse, Bhargava, Jurkin, Harel, and Zhou since Callahan, Epperson, Posse, Bhargava, Jurkin, Harel, and Bamford teach the execution of tasks, Callahan, Epperson, Jurkin, Harel, Zhou, and Bamford teach the use of networks, Posse, Bhargava, Jurkin, Harel, Zhou, and Bamford teach the use of nodes, Callahan, Epperson, Posse, Zhou, and Bamford teach the use of time as an element, Epperson, Bhargava, Jurkin, Harel, and Bamford teach the use of queries, Epperson, Bhargava, Jurkin, and Bamford teach the use of databases, and Epperson, Jurkin, and Bamford teach the use of servers.

15. As per claims 42, 55, and 68, the "...start time stamp and the finish time stamp...," is taught by Zhou at col. 21, lines 33-38

and the "...reference a clock time...," is taught by Bamford at col. 4, lines 6-10.

16. Claims 44, 57, and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callahan, Epperson, Posse, and Bhargava as applied to claims 36, 49, and 62 above respectively, and further in view of Naidu et al. (U.S. Patent No. 5,752,002).

As per claims 44, 57, and 70, the "...first execution trace information and the second trace information...," is taught by Callahan at col. 8, lines 19-23,

but the "...are written to different files...," is not taught by either Callahan, Epperson, Posse, or Bhargava.

However, Naidu teaches writing to different files as follows:

"...The graphical user interface 70 then invokes the performance analyzer parser in between the ASIC design 10 and the functional

model, the performance analyzer 30 writes the analyzed data into different files in ASCII format for display of the data, and returns the status flag to the parser..." at col. 7, lines 41-46.

It would have been obvious to one of ordinary skill at the time of the invention to combine Naidu with Callahan, Epperson, Posse, and Bhargava since Callahan, Epperson, Posse, Bhargava, and Naidu teach the execution of tasks and the use of testing, Callahan, Epperson, Posse, and Naidu teach the use of time as an element, Epperson, Posse, Bhargava, and Naidu use performance analysis, and Callahan, Epperson, and Naidu teach the use of routines.

17. Claims 46, 48, 59, 61, 72, and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callahan, Epperson, Posse, and Bhargava as applied to claims 36, 49, and 62 above respectively, and further in view of Filepp et al. (U.S. Patent No. 5,594,910).

As per claims 46, 59, and 72, the "...reconstructing the execution trace information...," is taught by Posse at col. 8, lines 29-34, col. 8, lines, 43-48, col. 10, line 67, and col. 11, lines 1-3,

the "...according to the thread ID...," is taught by Callahan at col. 17, lines 29-32,

the "...and presenting the reconstructed execution trace information..., is taught by Posse at col. 11, lines 48-52, col. 8, lines 29-34, col. 8, lines, 43-48, col. 10, line 67, and col. 11, lines 1-3,

but the "...accepting a presentation command...,"

the "...time stamp...,"

and the "...presentation command...," are not taught by either Callahan, Epperson, Posse, or Bhargava.

However, Filepp teaches the use of presentation commands and time stamps as follows:

"...However, such messages are coded so as to be able to accept user input in various stages of completion, thus mimicking conversational transactions...." at col.18, lines 27-29.

"...They provide the origin; i.e., drawing points, and dimensions of each page partition and different values for presentation commands such as palette and background color..." at col. 10, lines 36-39.

"...The originating application sends an FM64 with "status type=terminate", and data mode=EBCDIC FM64 text follows the header with "action field"=A (Action), "module name"=SSSx0nnnn, "reference number"=0, Text=((timestamp =HHMMSS), Number of current users=NNNNN)..." at col. 19, lines 37-42.

It would have been obvious to one of ordinary skill at the time of the invention to combine Filepp with Callahan, Epperson, Posse, and Bhargava since Callahan, Epperson, Posse, Bhargava, and Filepp teach the execution of tasks and the performance of testing, Callahan, Epperson, Posse, and Filepp teach the use of time as an element, Callahan, Epperson, and Filepp teach the use of activities, routines, and subroutines, and the use of networks, Epperson, Bhargava, and Filepp teach performing queries and the use of databases, and Posse, Bhargava, and Filepp teach the use of nodes.

18. As per claims 48, 61, and 74, the "...first execution trace information and the second execution trace information...," is taught by Callahan at col. 8, lines 19-23, the "...include a thread ID...," is taught by Callahan at col. 17, lines 29-32,

the "...and a time stamp...," is taught by Filepp at col. 19, lines 37-42,

the "...synchronizing...," is taught by Posse at col. 11, lines 62-67 and col. 12, lines 1-2,

and the "...execution trace...," is taught by Callahan at col. 8, lines 19-23,

and the "...trace records..." is taught by Epperson at col. 15, lines 38-41 and col. 9, lines 45-49,

and the "...according to the time stamp..." is taught by Filepp at col. 19, lines 37-42.

19. Claims 47, 60, and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callahan, Epperson, Posse, and Bhargava as applied to claims 36, 49, and 62 above respectively, and further in view of Carey et al. (U.S. Patent No. 6,285,997).

As per claims 47, 60, and 73, the "...generating first execution trace information...," is taught by Callahan at col. 8, lines 19-23,

the "...in the query coordinator...," is taught by Epperson at col. 8, lines 43-46,

the "...and generating second execution trace information...," is taught by Callahan at col. 8, lines 19-23,

the "...in the data server...," is taught by Epperson at col. 5, lines 51-57,

but the "...is performed while executing the query....," is not taught by either Callahan, Epperson, Posse, or Bhargava.

However, Carey teaches performing other routines while executing a query as follows:

"...Its major tasks are performed later, during query execution, under the control of the Query Evaluation Subsystem (QES) 210..." at col. 10, lines 32-35.

It would have been obvious to one of ordinary skill at the time of the invention to combine Carey with Callahan, Epperson, Posse, and Bhargava since Callahan, Epperson, Posse, Bhargava, and Carey teach the execution of tasks and the performance of testing, Callahan, Epperson, Posse, and Carey teach the use of time as an element, Callahan, Epperson, and Carey teach the use of networks, Epperson, Bhargava, and Carey teach performing queries and the use of databases, and Posse, Bhargava, and Carey teach the use of nodes.

Response to Arguments

20. Applicants' arguments filed 14 April 2003 have been fully considered but they are not persuasive. In the first argument for claims 38, 41, 51, 53, 64, and 66, on page 8, paragraphs 3-5, the Applicants state as follows:

"In paragraph 1, the Office Action rejects claims 38, 40, 51, 53, 64, and 66 under 35 US.G § 112 as being indefinite for failing to particularly point out in distinctly claim the subject matter which the applicant regards as the invention.
According to the Office Action, the teen "operator" may designate a person or an abstract operator, and that the language in these claims should be modified to distinguish between these two possible meaning of the word "operator".
The Applicants respectfully traverse these rejections, because the meaning of the term "operator" is apparent from both the claim itself and the specification. For example, claim 1 recites and "operator tree", a phrase which certainly cannot be reasonably confused with a person. The Applicants' specification also includes numerous references to the term "operator," and in none of these contexts, can the word "operator" be reasonably confused with a "person.""

Each claim should be written in clear precise language, which should not depend upon a contextual interpretation with either another claim or the Specification.

21. In the second argument for independent claims 36, 49, and 62, on page 17, paragraphs 2 and 3, the Applicants state as follows:

"To be precise, Callahan generates raw trace information, that is later modified by the trace information display or (IM) for presentation to the user. The raw trace information includes information such as that which is illustrated in FIG. 4. In Callahan, each thread does not report trace information in the form of "tasks", but rather, as new information that is later assembled and formatted into a form is desired by the user.
Callahan uses "tasks" but clearly, does not report trace information in the form of "tasks," Callahan therefore either (1) teaches that there is no relationship between the "task" organization and the form of the reported execution trace information, or (2) teaches that the execution trace information should be reported differently In either case, Callahan can only be said to teach away from claim 1."

Callahan teaches the use of threads and the generation of trace information as follows:

"...For example, a region of code that loops multiple times with sequential values of a variable (e.g., `loop for x from 1 to 10`) may be able to be divided among multiple processors so that each instance of the loop (with a different value of the variable) can be executed by a different thread simultaneously..." at col. 10, lines 12-17.

"...In particular, target source code of interest is compiled in such a manner that executing the resulting target executable code will generate execution trace information related to a variety of performance measures for the one or more processors and protection domains used..." at col. 8, lines 19-23.

It is clear, that Callahan is teaching the generation of "execution trace information", which is the phrase used in independent claims 36, 49, and 62. The remainder of the Applicants argument is related to the Specification and not to independent claims 36, 49, and 62.

22. In the third argument for independent claims 36, 49, and 62, on page 17, paragraphs 4 and 5, the Applicants state as follows:

"Given the foregoing, it does not follow that if the Bhargava, which the Office Action indicates "use[s] nodes", would obviously report trace information the form of execution plans having one or more operator trees.
"A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the Applicants.

The degree of teaching away will of course depend on the particular facts; in general, a reference's disclosure will teach away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the Applicants. *In re Gurley*, 27 F.3d 551, 553, 31 US.P.Q.2d 1130 (Fed. Or. 1994)."

Bhargava teaches the use of execution plans and the use of operator trees as follows:

"...Block 206 represents the step of generating a compiled set of runtime structures called an application plan from the compiled SQL statements..." at col. 3, lines 23-25.

"...The conflict-free operator assignment attempts to generate an operator tree for a given association tree by assigning joins, outer joins and full outer joins to the interior nodes of the association tree..." at col. 14, lines 53-56.

Again Bhargava teaches both elements, the use of an application plan, which is essentially the same as an execution plan and the use of an operator tree. It would have been obvious to one of ordinary skill at the time of the invention to infer that the operator trees used in independent claims 36, 49, and 62 had nodes associated with the trees.

23. In the fourth argument for independent claims 36, 49, and 62, on page 17, paragraph 6, the Applicants state as follows:

"Claim 1 recites that the execution trace records are generated in separate entities (the data server and the query coordinator). The Applicants can ascertain nothing in the Callahan, Epperson, or Posse references that disclose this feature."

Epperson teaches the use of a query coordinator and a data server as follows:

"...Given the ability of queries to "jump" threads, a mechanism is provided for coordinating the process..." at col. 8, lines 43-46.

"...In the embodiment of FIG. 2, the actual library functionality for servicing the Application Programming Interface (API) is provided as part of the Database Server itself (e.g., SQL Server™)..." at col. 5, lines 51-57.

A process that coordinates queries is a query coordinator. Likewise, a database server is certainly a data server.

24. In the fifth argument for independent claims 36, 49, and 62, on page 17, paragraph 7 and page 18, paragraphs 1 and 2, the Applicants state as follows:

"Finally, the Office Action acknowledges that the Callahan and Epperson references do not teach writing execution trace information to at least one execution log file. However, the Office Action alleges that the following section of the Posse reference nonetheless teaches this feature:

At each successive execution of the test program, the value of the low-order address bits is incremented by one. This advances the sampling of the digital signal (which is regenerated with each test program exception) in discrete intervals.

and,

Its a preferred embodiment of the present invention, tester 500 interfaces with a simulator 508. Simulator 508 provides reference data representing the expected behavior of test node 512 to control unit 502 via reference data line 507. Typically, the simulation of digital circuit 515 is performed prior to (and independently of) the testing of digital circuit 513. The results of the simulation are then provided to control unit 502 in what is referred to as a simulation log file. The simulation log file contains threshold crossings and timing reference data for the test node 512 based upon the application of a given set of test inputs 513 to digital circuit 515.

The foregoing refers to a simulator 508 which interfaces with a circuit tester 500. Results from the simulation are provided to a control unit 502 in what is referred to as a simulation log file, which has threshold crossings and tinting reference data for test nodes based upon the application of a given set of test inputs to a digital circuit."

The Posse reference is used to show the use of an execution log file. The combination of these two references, which the Applicants have reproduced in the Amendment response to an Office Action teach the execution of a test program and the use of

simulation log files. Since a simulation is the execution of a test program these two references may be combined to teach the use of an execution log file.

25. In the sixth argument for independent claims 36, 49, and 62, on page 18, paragraph 2, the Applicants state as follows:

"The Applicants respectfully point out that this reference refers to an entirely different art than that of the Applicants' invention, and refers to collecting *digital circuit simulation* results, not execution trace information with operator trees. The applicants respectfully disagree that one of ordinary skill in the art would be motivated to alter the teachings of Callahan, Epperson, and Bhargava as described in an unrelated reference in an entirely different art (digital circuit simulation and analysis)."

The teachings of Callahan, Epperson, Posse, and Bhargava may be combined since they share many elements in common. Callahan, Epperson, Posse, and Bhargava teach the execution of tasks and perform testing, Callahan, Epperson, and Posse teach the use of trace information and the use of time as an element, Epperson, Posse, and Bhargava use performance analysis, Epperson and Posse, teach the use of sampling, Epperson and Bhargava perform queries and use databases, and Posse and Bhargava teach the use of nodes.

26. In the seventh argument for claims 43, 49, 56, 62, and 69, on page 18, paragraph 3, the Applicants state as follows:

"Claims 43, 49, 56, 62, and 69 include limitations analogous to those of claim 36, and are patentable for the same reasons."

Since claims 43, 56, and 69 depend on independent claims 36, 49, and 62, respectively, the responses to the second through the sixth arguments have rendered obvious independent claims 36, 49, and 62, and no additional argument have been presented for these claims, claims 43, 56, and 69 are also rendered obvious. Since the rejection of

independent claims 49 and 62 was on the same basis as independent claim 36, the responses to the second through the sixth arguments also render obvious independent claims 49 and 62.

27. In the eighth argument for claims 45, 58, and 71 on page 18, paragraph 4 and page 19, paragraphs 1 and 2, the Applicants state as follows:

"Regarding Claims 45, 58, and 71: According to the Office Action, the step of reconstructing the execution trace information from the log file is disclosed in the Posse reference. However,

- column 8, lines 28-33 of the Posse reference refers to reconstructing a test period of an input signal;
- column 9, lines 27-29 of the Posse reference refers to testing of a digital signal;
- column 10, lines 1-3 of the Posse reference describes engineering models that generate library files containing threshold crossing and "dependency' and "condition information";

and

- column 10, lines 54-57 of the Posse reference disclose reconstructing simulation data.

None of the foregoing discloses reconstructing execution trace information with operator trees from an execution log file."

Posse teaches the reconstructing the execution trace information from a log file as follows:

"...Thus, since Y=3 (see column 5) and the input signal periods are divided into 2.sup.3 or 8 portions, then 8 repetitions of the test program are required to accumulate enough sampled portions to **reconstruct** a complete **test period** of the input signal 208 illustrated in FIG. 3A..." at col. 8, lines 28-33.

"...This advances the sampling of the digital signal (which is regenerated with each **test program execution**) in discrete intervals..." at col. 9, lines 27-29.

"...The engineering models generate a library file containing timing (**threshold crossings**) and "**trace** and when" (dependencies and conditions) **information**..." at col. 10, line 67 and col. 11, lines 1-3.

"...The simulation **log file** contains **threshold crossings** and **timing reference data** for the **test** node 512 based upon the application of a given **set of test inputs** 513 to digital circuit 515..." at col. 10, lines 54-57.

It is abundantly clear from these references, that Posse is teaching the reconstruction of test periods using trace information, which is stored in log files. This is very close to the technology in claims 45, 58, and 71.

28. In the ninth argument for claims 38, 51, and 64 on page 19, paragraphs 4 and 5, the Applicants state as follows:

"Claim 38 recites that the execution trace information further comprises operator dispatch information. The Office Action suggests that Kimmerly discloses the use of operator dispatch information at column 3, lines 9-16. However, Kimmerly does not disclose including operator dispatch information in execution trace information, as claim 38 recites. Further, the Office Action provides no motivation for using such operator dispatch information, only that it is known to be used in other contexts. Accordingly, the Applicants do not believe the Office Action has presented a *prima facie* case of obviousness under 35 US.C§ 103.
Claims 51, and 64 include limitations analogous to those of claim 38, and are patentable for the same reasons."

Kimmerly teaches the use of operator dispatch information at col. 3, lines 9-16 and Epperson teaches the use of Execution trace information at col. 8, lines 19-23. It would have been obvious to one of ordinary skill at the time of the invention to combine Kimmerly with Callahan, Epperson, Posse, and Bhargava since Callahan, Epperson, Posse, Bhargava, and Kimmerly teach the execution of tasks and Callahan, Epperson, and Kimmerly teach the use of routines and subroutines.

29. In the tenth argument for claims 39, 40, 52, 53, 65, and 66 on page 20, paragraphs 1-6, the Applicants state as follows:

"Claim 39 recites that the execution trace information includes a session identifier and a query ID, while claim 40 recites that the execution trace record includes an operator ID, a scan timestamp, and a finish timestamp. Here again, the Office Action rejects these claims based upon references that at best, merely discloses a parameter, but does not disclose providing that parameter in anything analogous to an execution trace record. As for a rationale to combine these references, the Office Action indicates:

"It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Jurkin and with Callahan, Epperson, and Posse since Callahan, Epperson, Posse, and Jurkin teach the execution of tasks in the use of trace information, Callahan, Epperson, and Jurkin teach the use of networks and the use of routines and subroutines, Epperson and Jurkin teach the performing of queries, the use of databases, and the use of servers, Posse and Jurkin teach the use of nodes."

The Applicants respectfully disagree that the foregoing rationale for combine these references comports with the requirements of 35 U S.C, § 103. Even if the above statements were true in terms of what each reference teaches, it does not provide a rationale for combine or modify these references. Accordingly, the Applicants respectfully traverses the rejection of claims 39 and 40.
Claims 52 and 65 recite features analogous to those of claim 39, and are patentable on the same basis.
Claims 53 and 66 recite features analogous to those of claim 40, and are patentable on the same basis."

Jurkin teaches the use of a session identifier at col. 9, lines 66-67, Harel teaches the use of query identifiers at col. 6, lines 54-56, and Zhou teaches the use of timestamps at col. 21, lines 33-38. The teachings of Callahan, Epperson, Posse, and Jurkin may be combined since they share many elements in common.

30. In the eleventh argument for claims 41, 42, 54, 55, 67, and 68 on page 20, paragraph 8, the Applicants state as follows:

"According to the Office Action, the Zhou reference teaches the is a start timestamps and finish timestamps. However, again, those timestamps are not used in anything analogous to an execution trace record, and no motivation to include those timestamps

in execution trace record is provided. Hence, the Applicants respectfully traverse these rejections."

Zhou teaches the use of timestamps at col. 21, lines 33-38 and Callahan teaches the use of execution trace information at col. 8, lines 19-23. It would have been obvious to one of ordinary skill at the time of the invention to combine Zhou with Callahan, Epperson, Bhargava, Posse, Jurkin, and Harel since Callahan, Epperson, Jurkin, Harel, and Zhou teach the use of networks, Posse, Bhargava, Jurkin, Harel, and Zhou teach the use of nodes, and Callahan, Epperson, Posse, and Zhou teach the use of time as an element.

31. In the twelfth argument for claims 44, 57, and 70 on page 21, paragraph 2, the Applicants state as follows:

"According to the Office Action, Naidu teaches writing to different files at different times. Again, this teaching is out of context with anything analogous to an execution trace record, and no motivation is provided. Hence, the Applicants respectfully traverse these rejections."

Naidu teaches writing to different files at col. 7, lines 41-46 and Callahan teaches the use of execution trace information at col. 8, lines 19-23. It would have been obvious to one of ordinary skill at the time of the invention to combine Naidu with Callahan, Epperson, Posse, and Bhargava since Callahan, Epperson, Posse, Bhargava, and Naidu teach the execution of tasks and the use of testing, Callahan, Epperson, Posse, and Naidu teach the use of time as an element, Epperson, Posse, Bhargava, and Naidu use performance analysis, and Callahan, Epperson, and Naidu teach the use of routines.

32. In the thirteenth argument for claims 46, 48, 59, 61, 72, and 74 on page 21, paragraph 4, the Applicants state as follows:

"The Office Action indicates that Filepp teaches the use of presentation commands and timestamps, but, as before, not in the context of assembling execution trace information. Further, no mention is made of synchronizing execution trace record as according to the timestamp, as recited in claim 48. Accordingly, the Applicants respectfully traverse these rejections."

Filepp teaches the use of presentation commands at col. 10, lines 36-39 and the use of timestamps at col. 19, lines 37-42, Callahan teaches the use of execution trace information at col. 8, lines 19-23, and Posse teaches the use of synchronization at col. 11, lines 62-67 and col. 12, lines 1-2.

33. In the fourteenth argument for claims 47, 60, and 73 on page 21, paragraph 4, the Applicants state as follows:

"The Office Action indicates that the Carey reference teaches performing other routines while executing a query. However, the subject claims recite that execution trace information are generated is two separate entities (the query coordinator and the data server) while executing the query. Even if the Carey reference discloses performing other routines while executing a query, it does not disclose all of the features of the subject claims. Accordingly, the Applicants respectfully traverse these rejections."

Carey teaches performing other routines while executing a query at col. 10, lines 32-35, Callahan teaches the use of execution trace information at col. 8, lines 19-23, and Epperson teaches the use of a query coordinator at col. 8, lines 43-46 and the use of a data server at col. 5, lines 51-57.

Conclusion

34. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harold E. Dodds, Jr. whose telephone number is (703)-305-1802. The examiner can normally be reached on Monday - Friday 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene can be reached on (703)-305-9790. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-305-3900.

Harold E. Dodds, Jr.
Patent Examiner
May 30, 2003

GRETA ROBINSON
PRIMARY EXAMINER